

Election Restriction

In the Office Action, the Examiner issued a restriction requirement to which Applicants' orally elected on March 8, 2002. By this reply, Applicant's affirm the election made as to Group 1 species A, drawn to Fig. 2, with claims 1-5 and 10-16 readable thereon. Applicant's reserve the right to file a Divisional application on the non-elected claims at a later stage, depending on the results of examination of the elected claims.

Claim Rejections 35 U.S.C. § 102/103

Claims 1, 2, 4 and 5 stand rejected under 35 U.S.C. 102(b) as allegedly being anticipated by EerNisse et al. (U.S. Patent No. 5,022,130). This rejection is respectfully traversed.

Initially, the Examiner indicates that the process steps previously recited in the preamble are not given patentable weight; however Applicants have positively recited these process steps in amended claim 1 and therefore request that the Examiner examine these steps as part of the method of producing an acoustic resonator device in accordance with the invention.

As to EerNisse, Applicants kindly submit that EerNisse fails to teach or suggest a method of producing an acoustic resonator device, comprising at least the depositing steps as recited in amended claim 1. EerNisse et al. does not specify exactly how the crystal resonator structure is fabricated, much less isolated. As shown in Fig. 1(a) of EerNisse et al. for example, the crystal resonator is described as a separate electrode structure 14 and a round center mass 4 (surrounded by a crystal 8), where center mass 4 is an active region. The Examiner relies on the passage which says that odd-symmetry

stress may be introduced by shifting the location of the active region of vibration within active region 4. However, how this is actually done is not taught or described in EerNisse et al. Further, EerNisse does not describe specific formation steps such as depositing a first metal film, as is recited in amended claim 1. Thus, EerNisse et al. does not meet the requirements of 35 U.S.C. § 102(b) as teaching each claimed element. Moreover, since the electrode structure 14 in EerNisse et al. is separate from the crystals, EerNisse et al. does not foresee producing an acoustic resonator device as recited in amended claim 1. For at least this reason the rejection fails, and the Examiner is kindly requested to withdraw the rejection.

Regarding the combination rejection under 35 U.S.C § 103(a), the Examiner cites Ruby et al. (5,873,153), for an alleged teaching of isolating resonator frequencies after fabrication of a device, as well as an alleged teaching of backfilling voids formed in piezoelectric material. However, Applicants kindly submit that these features are not part of claims 1 and 13, since what is recited is isolating piezoelectric material or removing piezoelectric material to reduce lateral propagation of acoustic energy. Therefore, Applicants kindly submit that Ruby et al. is not relevant to the claimed invention, and does not cure the deficiencies in EerNisse et al. (e.g., the positive recitation of depositing steps) that have been set forth above. Accordingly, for at least this reason, Applicants submit that dependent claims 3, 10-12 and 14-16 are allowable. Additionally regarding independent claim 13, Applicants submit that this claim is allowable for at least the reasons set forth above regarding independent claim 1.

CONCLUSION

In view of the foregoing, Applicants submit that claims 1-15 and 10-16 are in condition for allowance. Early and favorable notice to that effect is respectfully solicited.

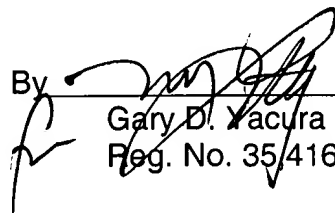
In the event that any matters remain at issue in the application, the Examiner is invited to contact Matthew J. Lattig at (703) 390-3030 in the Northern Virginia area, for the purpose of a telephonic interview.

Pursuant to 37 C.F.R. 1.17 and 1.136(a), the Applicants respectfully petition for a one (1) month extension of time for filing a response in connection with the present application, and the required fee of \$110.00 is attached.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attached: Marked up changes to claims
GDY/MJL:kmh

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims

Please amend the claims as follows:

1. (Amended) A method of producing an acoustic resonator device [formed by a piezoelectric material interposed between two conductors on a substrate], comprising:
depositing a first metal film on a substrate;
depositing piezoelectric material on said first metal film;
depositing a second metal film on said piezoelectric material; and
isolating said piezoelectric material by selectively removing some or all
piezoelectric material not involved in signal transmission to reduce [the] an amount of acoustic energy which propagates in a lateral direction away from the device.
12. (Amended) The method of claim 1, wherein said substrate is formed as a plurality of [acoustic] acoustic reflecting layers on a substrate such as a silicon, quartz, or glass wafer.
13. (Amended) A method of isolating an acoustic resonator device [having a piezoelectric material interposed between two conductors on a substrate], comprising:
depositing a first metal film on a substrate;
patterning said first metal film;
depositing piezoelectric material on said first metal film;
depositing a second metal film on said piezoelectric material;
patterning said second metal film; and
removing some or all piezoelectric material not involved in signal transmission [by transduction between RF and acoustic energy] after device fabrication to limit lateral propagation losses to un-etched regions of the device, thereby limiting propagation of energy in lateral modes.